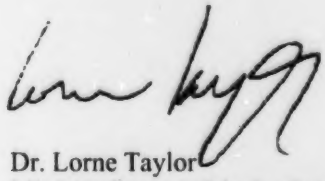
Science, Research and Information Technology

Business Plan 1999-2000 to 2001-02

Accountability Statement

This Business Plan for the three years commencing April 1, 1999 was prepared under my direction in accordance with the Government Accountability Act and the government's accounting policies. All of the government's policy decisions as at February 18, 1999 with material economic or fiscal implications of which I am aware have been considered in preparing the Business Plan.

The Ministry's priorities outlined in the Business Plan were developed in the context of the government's business and fiscal plans. I am committed to achieving the planned results laid out in this Business Plan.



Dr. Lorne Taylor
Minister Responsible for Science, Research
and Information Technology
February 19, 1999

Mission

The mission of Science, Research and Information Technology (SRIT) is to enhance the contribution of science, research, and information technology to the sustainable prosperity and quality of life of all Albertans.

Contribution of Science, Research and Information Technology to the Core Businesses of the Alberta Government

Science and research creates new ideas and applies knowledge to generate new products and services that improve the quality of Alberta's economy, communities and environment. At the heart of the Science and Research System (Innovation System) are the thousands of creative, imaginative people working in hundreds of institutions and businesses across the province. The system embodies not only research and development, but also the dissemination, commercialization and application of knowledge and technology. Government, universities, and private enterprises all play important roles in converting research and technology into products and services that produce socio-economic benefits for Albertans. Information and communications technology forms a central element of a vision for the province in which "knowledge-based industries" form a fourth pillar of the economy.

Science and research contributes to each of the three core businesses identified within the Alberta Government's Business Plan:

People – The well being of Albertans will be sustained through innovative application of knowledge and technology.

Prosperity – Alberta's economy will be increasingly innovative through creation and use of knowledge and technology.

Preservation – The well being of Alberta's communities and natural environment will be sustained through application of knowledge and technology.

Core Businesses of the Ministry of Science, Research and Information Technology

The Ministry of Science, Research, and Information Technology (SRIT) accomplishes its mission through three core businesses:

1. Managing strategic investments in science and research
2. Coordinating government science and research
3. Providing strategic leadership for science and research in Alberta

SRIT delivers its core businesses primarily through the Alberta Science, Research, and Technology Authority (ASRTA). ASRTA, as described in Bill 14, combines the roles of the Alberta Science and Research Authority (ASRA) and the Alberta Research Council (ARC).

102-03673/

Alberta Heritage Foundation for Medical Research (AHFMR)

The Alberta Heritage Foundation for Medical Research reports to the legislature through the Minister Responsible for Science, Research and Information Technology. Established as a uniquely independent foundation by the *Alberta Heritage Foundation for Medical Research Act* (1980), AHFMR supports a balanced, long-term program of medical research based in Alberta. Using the income from an endowment of approximately $900 million, AHFMR funds basic, patient and health research by new and established investigators and researchers-in-training. AHFMR is at arms-length from government and is governed by a Board of Trustees and led by a President/Chief Executive Officer.

Core Business 1 – Managing strategic investments in science and research

SRIT is responsible for the identification, development, and implementation of strategic, high-value, science and research initiatives that increase the capacity of Alberta's science and research system. SRIT's largest single investment involves sustaining support for the research and technology commercialization infrastructure of the Alberta Research Council. In addition SRIT provides funding, through the Strategic Science and Research Initiatives Program, for a variety of initiatives that enhance Alberta's science and innovation infrastructure, research, and human capital capacity. SRIT's investments are highly integrated and coordinated with other provincial, federal and private sector programs to ensure maximum benefit to the people of Alberta.

Objective 1 — Alberta will have world-class science and research infrastructure and human capital capacity

A major component of SRIT's investment business involves supporting institutional innovation infrastructure.

Strategy 1.1 – Invest in the Alberta Research Council (ARC)

Purpose

SRIT's investment in ARC is one of the most important strategies for commercialization and application of technology to enhance the competitiveness of Alberta's resource industries.

Description

The Alberta Research Council provides applied research support for Alberta small to medium-sized enterprises. ARC also contributes significantly to commercialization of technology that enables Alberta firms to enhance their global competitiveness. ARC supports the growth of Alberta's innovation-based economy by focusing on the development, adaptation and commercialization of technologies in niche areas with Alberta's strategic economic sectors. Specifically, ARC:

1. Enhances the competitiveness of Alberta's agriculture, energy, forestry and emerging information and biotechnology industries
2. Provides a specialized and sustainable research and development (R&D) capability in Alberta
3. Develops and commercializes technologies that will benefit Alberta

Performance

ARC Performance Measures	1997-1998 Actual	1998-1999 Projected	1999-2000	2000-2001	2001-2002
Inputs					
SRIT investment	$23.5 M	$25.4 M	$27.1 M	$27.3 M	$27.5 M
Expected Outcomes					
Private sector investment	$18.0 M	$22.7 M	$24.2 M	$25.8 M	$28.5 M
Financial leverage	0.77	0.89	0.89	0.95	1.04
Customer satisfaction	95.7%	From 95.7% (1997/98) to 98%+ by 2005			
Employee satisfaction	66.9%	From 66.9% (1997/98) to 90%+ by 2005			
Expected Impacts					
Economic impact	$134 M	$140 M	$150 M	$160 M	$170M
Mission effectiveness (Economic impact / investment)	5.7	5.5	5.5	5.9	6.2
Job creation (direct jobs)	782	800	850	900	950

Strategy 1.2 – Invest in strategic science and research initiatives

This strategy responds to several recommendations from the Growth Summit, including:

- to "maintain and enhance research infrastructure and initiatives including both theoretical and applied research."
- "education must be recognized as an investment in Alberta's future that is critical to economic development," and "prepare for the skill requirements for high-tech/knowledge-based, new economy industries . . . by focusing efforts on the educational needs of these industries."
- "the Province should foster the growth area of research and development" and "continue to support high-tech, knowledge-based research facilities including linking these facilities with key industries in Alberta."

Purpose

The purpose of investments from the Strategic Science and Research Initiatives program is to strengthen the Province's science and research infrastructure in strategically important areas identified by the ASRTA Board.

Description

The program, which is the successor of the legislated Science and Research Fund, enters its third year of operation in 1999-2000. The program assists in the launch of science and research initiatives that will benefit Alberta's economy and the well-being of Albertans. Typically, projects involve partnerships of multiple public and private sector players and significant financial leverage of ASRTA funds. A major

focus of the program, "Knowledge-Based Initiatives", which was jointly developed with *Alberta Advanced Education and Career Development* during 1998, identified two strategic priorities:

1. Grow a critical mass of world-class researchers in the fields of mathematics, physics, computer science, engineering and related disciplines and technologies as they support the Information and Communication Technologies (ICT) sector.

2. Encourage and facilitate the growth of key knowledge-based industry sectors through initiatives that link university researchers and businesses.

Performance

The performance of SRIT's investments through the Strategic Science and Research Initiatives program will be assessed over time in terms of six key performance areas:

Input / Process	Output / Outcome
Research excellence	Development of highly qualified personnel
Networking and knowledge transfer	Commercialization / application
Government support	Industry support

The relative importance of these performance areas and specific performance measures will differ for different types of projects. Specific performance measures are developed for each award on the basis of the characteristics of the project. Performance of investments from the program is monitored on the basis of quarterly and annual reports.

Strategic Science and Research Initiatives program Performance Measures	1997-1998 Actual	1998-1999 Projected	1999-2000	2000-2001	2001-2002
SRIT Investment	$3.74 M	$15 M	$31.5 M	$31.5 M	$31.5 M
Ratio of total program funding to SRIT investment	5.0	5.0	4.0	4.0	4.0
Development of Highly Qualified Personnel					
Researchers	NA	12	25	50	100
Students in training	100	120	140	180	220
Graduates	28	30	40	60	80
Commercialization / Application of Technology					
Technology disclosures	20	25	35	45	65
Patents filed	10	5	10	15	25
Industry Support					
Private sector investment	$7.41 M	$19.0 M	$34.0 M	$34.0 M	$34.0 M

Strategy 1.3 – Alberta Oil Sands Technology and Research Authority (AOSTRA)

In February 1999, responsibility for the *Oil Sands Technology and Research Authority Act* was transferred to the Minister Responsible for Science, Research and Information Technology by Order in Council.

Core Business 2 – Coordinating government science and research

Objective 2 - Government investments in science and research will effectively provide social and economic benefits to Albertans

Encourage and facilitate the increasing effectiveness and efficiency of R&D investments by the Alberta government.

Strategy 2.1 – Facilitate increased effectiveness of government science and research programs

The science and research business planning cycle will be used to encourage and facilitate alignment of government science and research activities with departmental and government strategies through an annual review of policies and practices.

Strategy 2.2 – Promote strategic coordination of health research

Provide leadership for the Alberta Health Research Strategy Advisory Group. This group facilitates the development and implementation of a shared vision and strategy among the funders and performers of health research in Alberta.

Strategy 2.3 – Promote coordination of science and research initiatives and policy among government departments

SRIT works with other departments to increase the effectiveness of government science and research initiatives. The following initiatives are typical of this type of interaction:

- **Business environment** - SRIT shares with *Alberta Treasury* and *Alberta Economic Development* a focus on maintaining a business environment in Alberta that sustains growth of research-intensive, knowledge-based industries and that supports a fair, competitive capital market.
- **Alberta's People and Prosperity Initiative** - SRIT works with other government departments to achieve the objectives of the People and Prosperity initiative.
- **Cross-Government Initiative - "Knowledge and Innovation"** - SRIT provides co-leadership for this initiative and works with other government departments to develop a high-level policy framework.

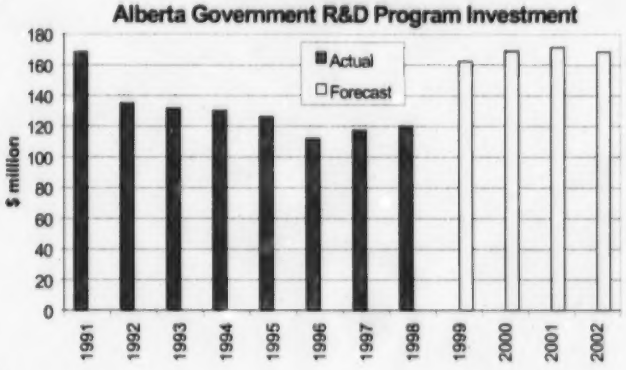
- **Alberta ICT Research Strategy Advisory Group** - SRIT provides leadership for this group, which facilitates the development and implementation of a shared vision and strategy among the funders and performers of ICT research in Alberta.

- **Climate Change** - SRIT participates with *Alberta Energy, Environmental Protection* and other stakeholder departments in addressing the policy and technology challenges posed by greenhouse gases, global warming and climate change.

- **Interdepartmental Biotechnology Committee**
  Advanced Education and Career Development; Agriculture, Food and Rural Development; Economic Development; Environmental Protection; Health; Intergovernmental and Aboriginal Affairs; Alberta Research Council; and Science, Research, and Technology Authority - This committee addresses issues of joint concern related to biotechnology such as Alberta's role in the Canadian Biotechnology Strategy and the International Convention on Biodiversity. The representative from *ASRTA* serves as chair.

Performance

As part of SRIT's objective of increasing R&D investment by all sectors of the Alberta economy, one of the Ministry's priorities has been that the Alberta government includes re-investment in research as a priority. Over the business planning period (1999-2002), ministries that are projecting increased investment in research include: *Advanced Education and Career Development, Agriculture, Food, and Rural Development, and Science, Research and Information Technology.* As well, the Alberta Heritage Foundation for Medical Research has projected increased investment over the planning period.



It is very important that increased government investment in R&D advances government goals of increased industrial R&D and enhanced research excellence in Alberta's universities. SRIT intends to work with departments during the business planning period to develop two sets of outcome measures for government investment in research. The first, **External Performance**, will encourage government departments to fund research performance outside of government. The second, **Financial Leverage**, will encourage development of funding partnerships for research performed within government.

Core Business 3 – Providing strategic leadership for science and research in Alberta

SRIT is responsible for developing policy related to improving science and research in Alberta. SRIT conducts this business through the Alberta Science, Research and Technology Authority (ASRTA). ASRTA advises the Minister Responsible for Science, Research and Information Technology on policy and priorities to enhance the effective utilization of the government's investment in science and research, and the science and research infrastructure.

Objective 3 - Alberta's innovation policy will be informed by strategic advice from the ministry

SRIT will develop and promote informed and practical recommendations to the government related to science and research policies and priorities, provincial government investments in science and research, and science and research infrastructure.

Strategy 3.1 – Promote implementation of the strategy "Sustaining the Alberta Advantage"

Promote implementation of the strategy for science and research in Alberta, "*Sustaining the Alberta Advantage: Investing in Knowledge, Our Most Important Renewable Resource*", published during 1997.

Strategy 3.2 – Implement a performance measurement system for science and research in Alberta

Provide leadership in implementing a system of performance measurement, tracking and reporting for science and research in Alberta.

Strategy 3.3 – Maintain effective working relationships in science and technology with other jurisdictions

The Minister Responsible for Science, Research and Information Technology has the mandate to represent the province in interprovincial and national-level science and research issues. This mandate includes responsibility for the memorandum of understanding, "*The Coordination of Science and Technology Initiatives for Western Economic Development*", and liaison with the Council of Science and Technology Ministers.

Strategy 3.4 – Promote science and research for sustainable resource development

Encourage and facilitate the support of research to enable development of Alberta's natural resources on a sustainable basis and to increase substantially the value-added manufacturing of Alberta's natural resources.

Encourage and promote integration of science and research as critical elements of provincial sustainable development policy through participation on *Sustainable Development Coordinating Council, Cabinet Committee on Climate Change, Climate Change Technology Strategy*, as well as other interdepartmental councils and committees.

Objective 4 – Alberta's highly qualified workforce will support business innovation

Alberta's highly qualified workforce will make Alberta the preferred location for research and business innovation in Canada.

Strategy 4.1 – Promote an increase in numbers of highly skilled personnel

Support the efforts of *Alberta Education* and *Advanced Education and Career Development* to increase the numbers of highly skilled personnel in strategically important fields of study in science and research.

Objective 5 – Albertans support investment in science and research

Albertans will understand the importance of science and research to the long-term prosperity and quality of life of Albertans and will support government investment in science and research.

Strategy 5.1 – Communicate to science and research stakeholders in Alberta

Maintain and implement the science and research communications plan.

Strategy 5.2 – Promote a "science culture" in Alberta

Facilitate the science promotion efforts of public and private organizations that enhance the science and innovation culture in Alberta.

Objective 6 – R&D investment by all sectors of the Alberta economy will increase.

Strategy 6.1 – Promote increased R&D investment by the pharmaceutical industry in Alberta

Establish a base line that identifies current pharmaceutical R&D investment in Alberta and work with the industry to increase this investment.

Strategy 6.2 – Increase federal government R&D investment through intergovernmental science and research liaison

Provide strategic leadership in interprovincial and national-level science and research matters.

Strategy 6.3 – Promote growth of the biotechnology sector

Promote the growth of the Alberta Biotechnology Association and encourage the development of the biotechnology industry.

Strategy 6.4 – Facilitate development of sector-specific plans to increase industrial R&D investment

Encourage and develop sector specific plans to increase industry funding for R&D in key sectors by working with government departments, management bodies and industry organizations.

Strategy 6.5 – Promote implementation of ASRA's ICT Strategy

Promote implementation of the recommendations contained in *"Information and Communications Technology: A Strategy for Alberta"*, which was published in October 1998. This document identifies four strategies:

- Invest in education of knowledge workers to double the number of ICT graduates.

- Develop the ICT infrastructure to increase connection among Albertans and encourage a culture of ICT use.
- Grow investment in R&D by creating a globally competitive environment for R&D intensive ICT companies.
- Grow ICT businesses by facilitating technology commercialization in Alberta.

Strategy 6.6 – Promote strategic coordination of ICT research

Provide leadership for the Alberta ICT Research Strategy Advisory Group. This group facilitates the development and implementation of a shared vision and strategy among the funders and performers of ICT research in Alberta.

Objective 7 – Alberta's university research will be recognized for its world-class excellence

Strategy 7.1 – Promote research excellence

Promote research excellence in Alberta's advanced education sector through consultation and cooperation with *Advanced Education and Career Development* and relevant institutions.

Objective 8 – Commercialization and application of the results of R&D will increase in Alberta.

Strategy 8.1 – Promote implementation of recommendations from *Barriers to Technology Commercialization in Alberta*

Encourage and promote the sustained effectiveness of Alberta's technology linking and commercialization infrastructure by pursuing the implementation of the recommendations of the *"Barriers to Technology Commercialization in Alberta"* Report. This report recommended improvements to the government-supported infrastructure that supports technology commercialization.

Strategy 8.2 – Promote an effective technology commercialization infrastructure

Support *Alberta Economic Development* in enhancing the effectiveness of the network of public and private institutions that support industry requirements for applied R&D, technology transfer, and knowledge prospecting and acquisition.

Strategy 8.3 – Promote a business environment that supports business innovation in Alberta

Monitor the competitiveness of Alberta's tax and fiscal environment for high-knowledge sectors relative to other provinces in Canada.

Strategy 8.4 – Promote development of patient venture capital funds to support technology commercialization in Alberta

Encourage creation of private, patient venture capital funds to support innovative businesses in the knowledge-based industries in Alberta.

Performance

SRIT's role in Core Business 3 is as a facilitator, influencer, and catalyst within Alberta's science and research system. In this role, SRIT neither delivers programs nor directly produces outcomes within the innovation system. The performance measurement framework for evaluating SRIT's effectiveness in achieving its mission involves assessment of the IMPACTS over time of OUTCOMES that result from the OUTPUTS of SRIT's activities. SRIT's OUTCOMES and IMPACTS can be evaluated only over the long term. In the long term, SRIT's success will be measured by the increase in the contribution of science and research to the prosperity and well being of Albertans.

Report	1999-2000	2000-01	2001-02
Annual Report on the performance of science and research in Alberta	X	X	X
Alberta government R&D plan	X	X	X
Annual report on government R&D	X	X	X

SCIENCE, RESEARCH AND INFORMATION TECHNOLOGY
MINISTRY INCOME STATEMENT
(thousands of dollars)

	Comparable 1997-98 Actual	Comparable 1998-99 Budget	Comparable 1998-99 Forecast	1999-2000 Estimates	2000-01 Target	2001-02 Target
REVENUE						
Internal Government Transfers	750	750	750	32,250	32,250	32,250
Other Revenue - Research Contracts	28,129	24,188	24,892	28,558	29,947	30,078
MINISTRY REVENUE	28,879	24,938	25,642	60,808	62,197	62,328
EXPENSE						
Program						
Minister's Office	224	250	250	250	250	253
Operations Funding and Policy Research	51,010	51,327	53,055	56,114	57,624	60,253
Strategic Research Initiatives	3,344	16,500	16,500	31,500	31,500	31,500
Energy Research / AOSTRA	10,994	16,930	16,388	8,040	5,540	5,540
Consolidated Expense	65,572	85,007	86,193	95,904	94,914	97,546
Gain (Loss) on Disposal of Capital Assets	59	-	-	-	-	-
Write Down of Capital Assets	(456)	-	-	-	-	-
NET OPERATING RESULT	(37,090)	(60,069)	(60,551)	(35,096)	(32,717)	(35,218)

CONSOLIDATED NET OPERATING RESULT
(thousands of dollars)

	Comparable 1997-98 Actual	Comparable 1998-99 Budget	Comparable 1998-99 Forecast	1999-2000 Estimates	2000-01 Target	2001-02 Target
Ministry Revenue	28,879	24,938	25,642	60,808	62,197	62,328
Inter-ministry consolidation adjustments	(7,239)	(7,780)	72	(38,500)	(38,500)	(38,500)
Consolidated Revenue	21,640	17,158	25,714	22,308	23,697	23,828
Ministry Program Expense	65,572	85,007	86,193	95,904	94,914	97,546
Inter-ministry consolidation adjustments	(6,489)	(7,030)	(6,067)	(6,250)	(6,250)	(6,250)
Consolidated Program Expense	**59,083**	**77,977**	**80,126**	**89,654**	**88,664**	**91,296**
Gain (Loss) on Disposal of Capital Assets	59	-	-	-	-	-
Write Down of Capital Assets	(456)	-	-	-	-	-
CONSOLIDATED NET OPERATING RESULT	(37,840)	(60,819)	(54,412)	(67,346)	(64,967)	(67,468)